POCKET PAL

the handy little book of graphic arts production

INTERNATIONAL PAPER

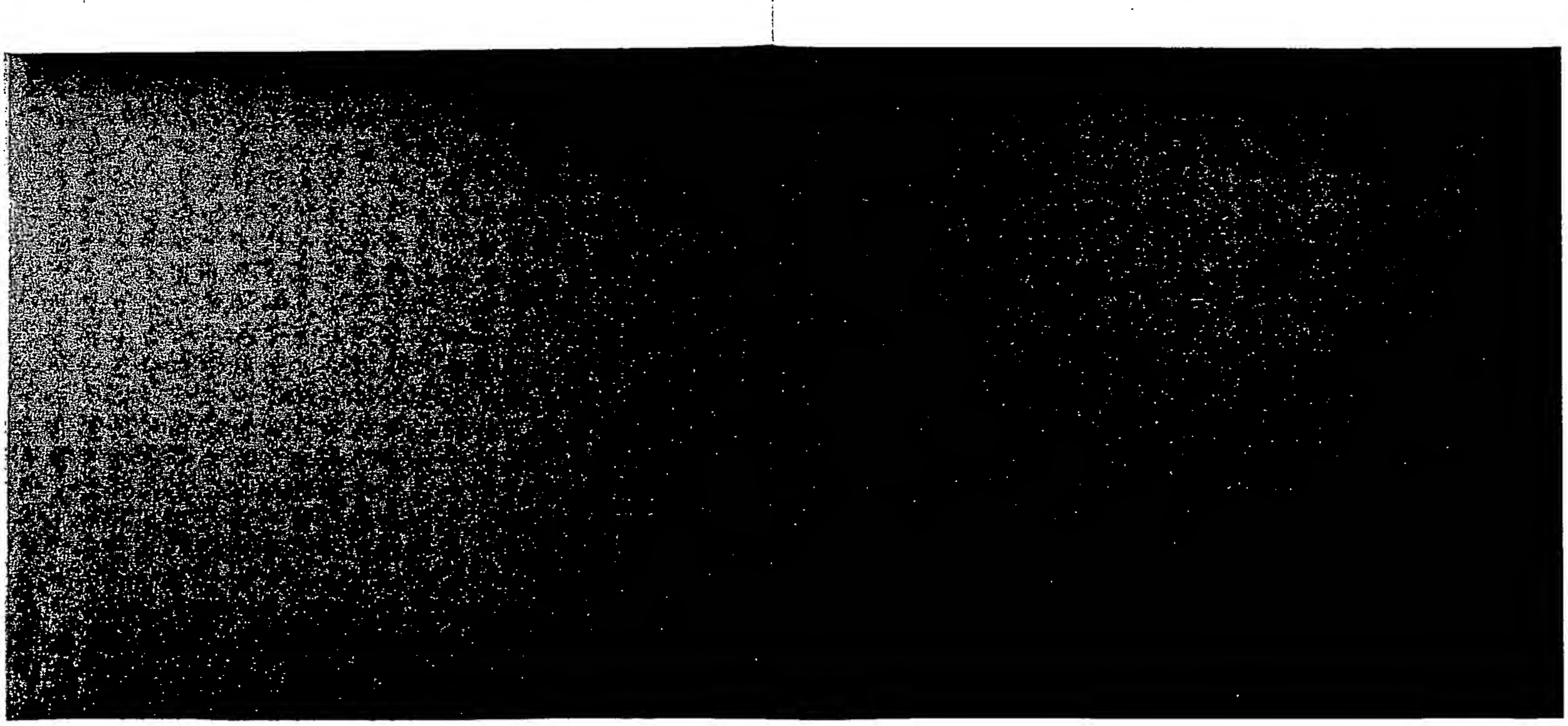
Exhibit A

Pocket Pal

A Graphic Arts Production Handbook

Nineteenth Edition

INTERNATIONAL PAPER



Dedicated to Lee Daniels, whose unwavering love for this book and its history makes us all proud to work on *The Pocket Pal.*

First Edition – 1934
Second Edition – September 1938
Third Edition – October 1954
Fourth Edition – November 1955
Fifth Edition – October 1957
Sixth Edition – April 1960
Seventh Edition – June 1963
Eighth Edition – November 1964
Ninth Edition – February 1966
Tenth Edition – May 1970
Eleventh Edition – December 1974
Twelfth Edition – March 1979
Thirteenth Edition – May 1983
Fourteenth Edition – May 1989
Fifteenth Edition – May 1992
Sixteenth Edition – July 1995
Seventeenth Edition – August 1997
Eighteenth Edition – August 2000
Nineteenth Edition – August 2003

foreword

Printing is undergoing the most important change in its history after being acclaimed the most important invention in the second millennium. Ever since its invention in 1450 A.D., printing has been the main medium of graphic communications. Now it must share that distinction with new digital technologies, mainly the Internet.

Since its debut in 1934, the *Pocket Pal* has been the authoritative introduction to the graphic arts for many artists, designers, publishers, advertisers, students and buyers of printing. Acclaimed by many as the best publication of its type, *Pocket Pal* is now in its 19th Edition as International Paper has continued to strive to keep its content current and accurate.

At the time of *Pocket Pal's* first edition, the term *printing* meant *letterpress,* and *lithography* and *gravure* were fledgling processes. Now the word *printing* encompasses not only all the graphic arts, but also all the graphic communications, digital imaging and printing processes that output hard copy.

This 19th Edition is the seventh since 1983 when digital imaging beyond electronic typesetting and scanning began to replace prepress operations. Since the 15th Edition in 1992, digital printing has been replacing conventional printing processes for short run printing and creating new means for on-demand and variable information printing. This edition attempts to put conventional and digital printing into proper perspective, and show what impact the new systems are having on the present and future uses and markets of printing.

In the 70 years of the *Pocket Pal,* Michael Bruno has been its editor and its soul for half that time. It has been our privilege to work with the person who created the research foundation for printing and educated several generations of graphic arts professionals.

Frank Romano
RIT School of Print Media
Editor

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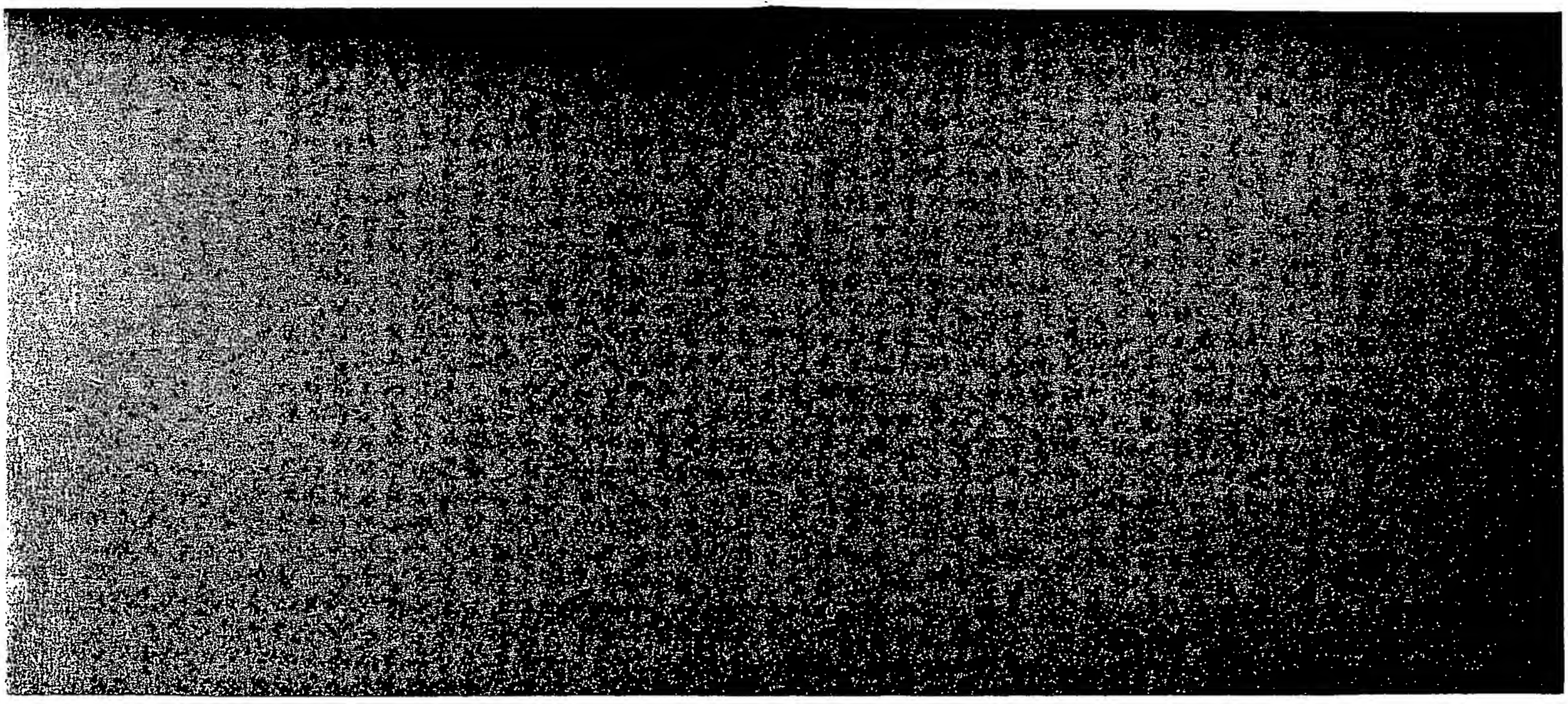

continuous-tone images are converted to dot pattern images, or *halftones*. Halftones have the appearance of continuous-tone images because of the limited resolving power of the human eye. This limitation accounts for an optical illusion. Small halftone dots of screen ruling of 133 lines per inch (lpi) and higher, when viewed at the normal reading distance, cannot be resolved as individual dots, but blend into a continuous tone *(see illustration, Page 57)*.

Preparing Art for Multicolor Printing

Art for multicolor reproduction by conventional printing is usually prepared in black and white on a mechanical. When hairline register is not required, the art for the key color is pasted to a sheet of illustration board, and the art for other colors is registered on clear acetate overlays hinged to the board. Color and screened percentages (if any) should be marked on each overlay.

For hairline register, all colors should appear on the same board, if possible, and the color break indicated on a tissue overlay. Pin register devices *(see Page 74)* can be used to ensure hairline register of separate image elements if they cannot be combined on the same board. Finish size should also be indicated on the art. If several pieces of art are prepared for a job, they should all be drawn the same size. This simplifies image capture operations and reduces preparation costs. All copy should be *keyed* or cross-referenced by page number, title or job number.

In preparing art for image capture, line and continuous-tone images should be separated. Full-color reproductions form a third group. Images not assembled together should be cross-referenced or keyed for easy identification. This can be done by making an outline drawing of the image on the mechanical or by photocopies which are pasted where key images will appear. Images keyed for color may be indicated by different color areas drawn on a tissue overlay on the mechanical.

Gravure requires extensive assembly of art and copy as each element is handled separately. Each method of cylinder preparation handles copy differently.

Screen printing art and copy can be prepared either manually with the knife-cut film method, photomechanically or by a combination of both these methods.

Register In preparing art where two or more colors are to be printed, register of the different color images is important. Jobs where color areas are independent of each other are considered *no-register* jobs. In 4-color process printing, *register* must be precise (± 1/2 row of dots or less).

register *In printing,* fitting of two or more printing images in exact alignment with each other. *(Page 58)*

register marks Crosses or other targets applied to original copy prior to photography. Used for positioning films in register, or for register of two or more colors in process printing.

relative humidity (RH) The amount of water vapor present in the atmosphere expressed as a percentage of the maximum that could be present at the same temperature.

repeatability The ability to keep photo film and the images thereon in proper register in imagesetters and film plotters. Repeatability is usually measured in micrometers.

reprography Copying and duplicating. *(Page 29)*

resist *In photomechanics,* a light-hardened stencil to prevent etching of non-printing areas on plates.

resolution Ability of an input device to record, or an output device to reproduce the fine detail of an image. There is a difference between resolution and addressability or sampling rate. Resolution concerns how closely spots can be placed, and also whether gray levels can be distinguished. Resolution for output devices depends on addressability, bit-depth, mark size and color.

respi screen *In halftone photography,* a contact screen with 110-line screen ruling in the highlights and 220-line in the middle tones and shadows to produce a longer scale and smoother gradation of tones in the light areas of the copy. *(Page 66)*

retrofit Backwards integration of advanced capability into a device or program not originally intended for that purpose.

reverse angle doctor blade *In flexography,* similar to doctor blade in gravure except used with much lighter pressure and a reverse angle on the anilox roll. *(Page 141)*

RGB (red, green and blue) The primary additive colors used in display devices and scanners. Commonly used to refer to the color space, mixing system or monitor in color computer graphics. *(Page 61)*

right-angle fold *In binding,* a term used for two or more folds that are at 90° angles to each other. *(Page 173)*

RIP *See raster image processor.*

roller stripping *In lithography,* a term denoting that the ink does not adhere to the metal ink rollers on a press. *(Page 137)*

rub-proof *In printing,* an ink that has re
and does not mar with normal abrasior

run-around *In composition,* the term
around a picture or other element of th

runnability Paper properties that affec
to run on the press. *(Page 191)*

running head A headline or title repeate

saddle stitch *In binding,* to fasten a bc
the middle fold of the sheets. Also calle

safelight *In photography,* the special
illumination without fogging sensitized r

sample Basic optical image element (ar
sensor of a camera or scanner. A sar
white, or it can be for several color char
cessed to obtain a pixel. Processing
from device RGB to some standardizec

scaling Determining the proper size of
or enlarged to fit an area. *(Page 59)*

Scan-a-web *In web printing,* a rotat
where speed can be varied to match t
the image on paper can be examined

scanner An electronic device used in
tone-corrected separations of images. *(*

score To impress or indent a mark in th
easier. *(Page 172)*

screen *See contact screen.*

screen angles *In color reproduction,* anc
screens are placed in relation to one ar
able moiré patterns. A set of angles o
magenta 75°, yellow 90°, cyan 105°. *(Pa*

screened print *In photography,* a print
made from a halftone negative or by diffi

screening That part of a RIP which calcu
each spot for an output device on the ba
value of the projected pixel from the inp
screener dots. The function of a screene
Depending on the characteristics of t
screener dots can have very different pro